REMARKS/ARGUMENTS

Applicants have received and carefully reviewed the Office Action of the Examiner mailed June 18, 2007. Claims 13-37 have been canceled, claims 1, 38, and 50 have been amended, and claims 51 and 52 have been added. Claims 1, 3-9, 38, 40-46, and 49-52 remain pending. Support for the amendments is found in the specification, claims, and drawings as originally filed at, for example, page 18, lines 10-15 and page 35, lines 6-11. No new matter has been added.

Rejection under 35 U.S.C. § 112, second paragraph

Claims 1, 3-9, 38, 40-46, 49 and 50 are rejected as being indefinite. Independent claims 1 and 38 have been amended as suggested by the examiner. Claim 50 has been amended to correct a typographical error. Reconsideration and withdrawal of the rejection are respectfully requested.

Rejection under 35 U.S.C. § 103(a)

Claims 1, 3-9, 38, 40-46, and 50 are rejected as being unpatentable over Fein (US 6,016,372) in view of Klainer (US 4,846,548). The Examiner acknowledges that Fein fails to teach a second light source with a second wavelength, but asserts that it would have been obvious to one of ordinary skill in the art to modify Fein to include a second light source of a second wavelength as taught by Klainer in order to provide for enhanced sensitivity in detection of the chemical specie. Applicants respectfully disagree.

Independent claims 1 and 38 recite:

1. (currently amended) A sensor for sensing an analyte comprising:
   an enclosure having an input and an output, the enclosure including a permeable wall;
   a first light source having a first wavelength at or near where the analyte absorbs maximally, the first light source adjacent a first end of the enclosure;

a second light source having a second wavelength that the analyte does not absorb maximally, the second light source adjacent the first end of the enclosure;
a light detector adjacent a second end of the enclosure; and
wherein the enclosure is adapted to contain a first fluid.

38. (currently amended) A sensor for sensing an analyte comprising:
a tubular permeable membrane enclosure having an input and an output;
a first light source having a first wavelength, the first light source proximate to a first end of the enclosure, wherein the first wavelength is absorbed by the analyte;
a second light source having a second wavelength, the second light source proximate to the enclosure, wherein the second wavelength is a reference wavelength;
a light detector proximate to a second end of the enclosure; and
wherein the enclosure is capable of containing a fluid.

Neither Fein nor Klainer appears to teach or suggest such a sensor. Fein appears to teach a waveguide sensor having a single light source in which sensitivity is enhanced by maximizing the surface area of the waveguide and adjusting the internal volume of the housing and size of the gas discharge opening. See column 11, lines 42-51. Fein also teaches enhancing sensitivity by increasing the ambient pressure. See column 12, lines 25-41. Fein thus appears to teach a single-light source waveguide with enhanced sensitivity. Klainer appears to teach a fiber optic sensor in which a solid core is clad with a reactive material. Klainer teaches "The clad can be attached to the core by either vapor deposition, plating or coating, or by any other known technique." See column 4, lines 43-45. Fein, however, teaches a waveguide having a liquid core in which "Sensitivity is enhanced by controlling the pressure differential across the waveguide wall and/or by shaping the waveguide to enlarge the surface area." See abstract. Applicants submit that there is no motivation for one of ordinary skill in the art to modify the teachings of Fein with those of Klainer. Fein specifically describes the disadvantages of solid core optical fiber sensors, which appears to be the type of fiber optic sensor taught by Klainer. See column 1, line 33 through column 2, line 62. Applicants submit that one of ordinary skill in the art, upon reading Fein's description of the disadvantages of the sensors of the type disclosed by Klainer,

would have no motivation to combine the teachings of Klainer with Fein. Further, Klainer's only teaching regarding the use of multiple wavelengths appears to be the generic statement that, "Multiple wavelength sources may be used to enhance sensitivity" with respect to a sensor for water involving a sensor having a cobaltous chloride coating on a suitable core. Klainer does not appear to provide any actual teaching of a sensor having multiple wavelength sources, and does not appear to provide any indication of how such a sensor would achieve enhanced sensitivity.

Additionally, Klainer does not appear to teach or suggest a sensor having "a first light source having a first wavelength at or near where the analyte absorbs maximally", and "a second light source having a second wavelength that the analyte does not absorb maximally", as recited in independent claim 1, or "a first light source having a first wavelength, the first light source proximate to a first end of the enclosure, wherein the first wavelength is absorbed by the analyte; a second light source having a second wavelength, the second light source proximate to the enclosure, wherein the second wavelength is a reference wavelength", as recited in independent claim 38. Applicants submit that Klainer's generic teaching that "multiple wavelength sources may be used to enhance sensitivity" does not provide any motivation for one of ordinary skill in the art to modify the device of Fein to include the specific first and second light sources as recited in the claims. Thus, even if one were to combine Fein and Klainer, one would not arrive at the sensors as claimed.

The Examiner asserts that the teaching of Klainer to provide multiple wavelength sources for the purpose of enhancing sensitivity would have been an obvious modification to the Fein device as another means for enhancing the sensitivity in detecting the chemical specie. Applicants respectfully disagree. As discussed above, Klainer does not appear to actually teach a sensor having multiple wavelength sources. Further, there is no teaching, suggestion, or motivation for one of ordinary skill in the art to modify the liquid core sensor of Fein with the solid core sensor of Klainer, especially in view of Fein's teachings of the disadvantages of solid core sensors. Additionally, even if one were to attempt to combine the teachings of Fein and Klainer, it is unclear how such a combination would be achieved. Reconsideration and withdrawal of the rejection are respectfully requested.

Claim 49 is rejected as being unpatentable over Fein in view of Klainer and further in view of Wong (US 5,444,249). For at least the reasons set forth above, the combination of Fein and Klainer fails to teach or suggest the elements of independent claim 38, from which claim 49 depends. Wong does not provide what Fein and Klainer lack. Reconsideration and withdrawal of the rejection are respectfully requested.

Neither Fein nor Klainer appears to teach or suggest the elements of newly added claims 51 and 52.

Reconsideration and reexamination are respectfully requested. It is submitted that, in light of the above remarks, all pending claims should now be in condition for allowance. If a telephone interview would be of assistance, please contact the undersigned attorney at 612-677-9050.

Respectfully submitted,

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